

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Application Number: 10/037,337  
Confirmation Number: 5844  
Filing Date: December 21, 2001  
Appellant: Richard L. COPELAND et al.  
Entitled: MAGNETIC CORE TRANSCEIVER FOR ELECTRONIC  
ARTICLE SURVEILLANCE MARKER DETECTION  
  
Examiner: Benjamin C. LEE  
Group Art Unit: 2632  
Attorney Docket No.: 1281-76U (C4-599)

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APPEAL BRIEF

Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed June 28, 2005. A  
Petition For Revival Of An Application For Patent Abandoned Unintentionally Under 37 CFR  
1.137(b) is being filed herewith.

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## **I. Real Party of Interest**

This Application is assigned to Sensormatic Electronics Corporation, 951 Yamato Road, Boca Raton, FL 33431-0700 on December 21, 2001, at Reel 012437, Frame 0259.

## **II. Related Appeals and Interferences**

Appellant is unaware of any related appeals and interferences.

## **III. Status of Claim**

Claims 4 and 12-32 are pending in this Application. Of those, claims 12-32 have been finally rejected and it is from the final rejection of claims 12-32 that this Appeal is taken. Claim 4 has been allowed and is not the subject of this Appeal.

## **IV. Status of Amendments**

The claims have not been amended subsequent to the imposition of the Final Office Action dated December 28, 2004.

## **V. Summary of Claimed Subject Matter**

Independent claim 12 is directed to an electronic article surveillance system for generating an electromagnetic field to interrogate and detect electronic surveillance markers. As supported by the specification on at least pages 5 and 6 and FIGS. 1, 2 and 5, a core 4 having a plurality of amorphous alloy ribbons 8 insulated from each other and stacked to form an elongated solid rectangular shape is provided. A coil winding of wire 6 is disposed around at least a portion of the core 4. The core 4 includes a central member 16 disposed between a first outer member 18 and a second outer member 20. At least a portion of the central member 16 extends beyond the end portion of one of the first and the second outer members.

Independent claim 16 is directed toward an antenna for use in an electronic article surveillance system. As described by the specification on at least page 5, lines 1-5 and page 6, lines 18-27 and depicted in FIGS. 1 and 5, the antenna includes a core 4 having a central member 16 disposed between a first outer member 18 and a second outer member 20, where least a portion of the central member 16 extends beyond an end portion of one of the first and second outer members. The antenna also includes a coil winding 6 disposed around at least a portion of the core 4.

Independent claim 20 is directed toward a method of detecting an electronic article surveillance (EAS) marker. As described by at least the Brief Summary of the Invention section and in the specification on at least pages 5 and 6 and page 8, lines 3-28, the method includes the step of providing a core antenna that has a core 4 and at least one coil winding 6 disposed about the core 4. The core 4 includes a plurality of amorphous alloy ribbons 8 insulated from each other. The method further includes the steps of exciting the core antenna to provide an electromagnetic field in an interrogation zone of an associated article surveillance system and detecting an electronic article surveillance marker in the interrogation zone.

Independent claim 23 is directed toward an electronic article surveillance antenna for generating an electromagnetic field to interrogate and detect electronic surveillance markers. As supported by at least the Brief Summary of the Invention section on page 3, lines 11-18, the specification on at least page 5, lines 23-34 and page 6, lines 3-17 and FIGS. 1, 2 and 5, the antenna includes a core 4 formed by a plurality of amorphous alloy ribbons 8 insulated from each other and stacked to form an elongate solid rectangular shape having first and second ends. The antenna further includes a coil winding of wire 6 disposed around at least a portion of the core 4, where the winding of wire 6 is insulated from the core 4. The core 4 and the winding 6 are at least a

minimum size for operably generating an electromagnetic field for interrogating and detecting electronic article surveillance markers.

Independent claims 28 and 31 are each directed toward a system for generating an electromagnetic field to interrogate and detect electronic article surveillance markers. As supported by the specification on at least pages 7-9 and FIGS. 8-10, the system includes a plurality of electronic article surveillance antennas, each including a core 4 formed by a plurality of amorphous alloy ribbons 8 insulated from each other and stacked to form an elongated solid rectangular shape. As supported by the specification on at least page 5, lines 23-34 and page 6, lines 3-17, the system further includes a coil winding of wire 6 disposed around at least a portion of the core 4, where the winding of wire 6 is insulated from the core 4, and the core 4 and winding 6 are at least a minimum size for operably generating an electromagnetic field for interrogating and detecting electronic article surveillance markers.

As supported by the specification on at least page 7, lines 17-26 and FIG. 8, the system also includes at least one electronic controller 30 connected to a plurality of antennas. The electronic controller 30 includes transmitter means in the form of transceivers 24, 26 for generating an electromagnetic field for transmission into an interrogation zone for reception by an electronic article surveillance marker. The electronic article surveillance marker responds with a characteristic response signal. The system further includes receiver means in the form of transceivers 24, 26 that detects the characteristic response signal. As supported by the specification on at least page 8, lines 3-28 and FIG. 10, claim 31 further includes switching means 50 for switching the coil winding of wire 6 between a transmitter circuit 44 and a receiver circuit 46, as illustrated in FIG. 10.

## **VI. Grounds of Rejection to be Reviewed on Appeal**

1. Claims 16-19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,345,222 to Davies et al. (“Davies”).

2. Claims 12-15, 20-25 and 32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Davies in view of U.S. Patent No. 5,567,537 to Yoshizawa et al. (“Yoshizawa”).

3. Claims 26-29 and 31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Davies et al. in view of Yoshizawa and U.S. Patent No. 6,118,378 to Balch et al. (“Balch”).

4. Claims 28-31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Davies in view of Yoshizawa and U.S. Patent No. 5,371,490 to Martinides.

## **VII. Argument**

### **The Rejection of Claims 16-19 under 35 U.S.C. § 103(a) for Obviousness based upon Davies Et Al.**

In the Final Office Action, the Examiner rejected claims 12-32 based upon arguments already presented by the Examiner in the third Office Action, dated June 1, 2004. Thus, all of Appellant’s arguments below shall refer to the rejections brought forth by the Examiner in the third Office Action.

For convenience of the Honorable Board in addressing the rejections, claims 17-19 stand or fall together with independent claim 16.

In the third Office Action, the Examiner rejected claims 16-19 under 35 U.S.C. § 103(a) as being unpatentable based upon Davies. The Examiner argued that:

While Davies does not disclose the claimed first and second outer members, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that the wrap-around member 53 would have functioned the same as separate top and bottom members in an antenna such as taught by Davies

et al. since the wrap-around member 53 is conceptually separate top and bottom members joined at the seam at the two side edges, and thus the antenna can alternatively be formed by two separate top and bottom member 53 sandwiching the central member 54 without unexpected result.

Appellant responded to this rejection by arguing that the wrap-around member 53 is actually a conductive layer that functions as a conductive flux-confining box. Davies requires that this conductive layer wrap around an insulating former 52 and 54 in order to function as intended. Appellant argued that the Examiner's suggestion of splitting the insulated conducting layer 53 into separate top and bottom members would actually teach away from the intended purpose of layer 53 as suggested by Davies, which is to trap and conduct the magnetic flux around the "flux-confining box".

Appellant further argued that Davies does not teach or suggest all of the claimed limitations, which is required under a 35 U.S.C. § 103(a) rejection and that there is no teaching or suggestion in Davies that conducting layer 53 can be formed as two separate members instead of "a flux-containing box" and still function for its intended purpose of containing magnetic flux.

In the Final Office Action dated December 28, 2004 the Examiner maintained the previous rejection of claims 16-19.

Use of discrete core components is not a predictable use of the flux-containing box

Claim 16 recites a core having "a central member disposed between a first outer member and a second outer member". The drawing figures clearly show that the first and second outer members are discrete components and not connected to each other in any way. The Examiner states that the wrap-around member 53 in Davies "would have functioned the same as separate top and bottom members in an antenna". This argument fails because the wrap-around insulating member 53 equates to the flux-containing box 42 which has a function of countering the

emergence of magnetic flux [Davies, col. 4, line 65 through col. 5, line 19]. Separating the wrap-around member into two discrete components would result in an outer member that can no longer trap and conduct the magnetic flux around the flux-containing box. Thus, the overreaching leap taken by the Examiner by stating that it would have been obvious to one of ordinary skill in the art at the time of the claimed invention that the wrap-around member would have functioned “the same” as separate top and bottom members clearly stands in the face of *KSR v. Teleflex*, 127 S.Ct. 1727 (2007). *KSR* requires a determination of “whether the improvement is more than the predictable use of prior art elements according to their established functions”. *KSR* at 1740. The Examiner has not made such a showing and relies on conceptual conjecture that Davies’ wrap-around member 54 would perform in the same manner as Appellant’s claimed device.

Clearly, because the established function of the flux-containing box and its insulated layer equivalent is to contain the magnetic flux, confining the position of the flux entry and exit points to the end of the box, substituting two discrete core member components for the wrap-around insulator is beyond the predictable use of the “flux-containing box”, as described by Davies.

On Page 3 of the final Office Action, the Examiner argues that the wrap-around member of Davies could be formed of two separate top and bottom members joined at the seams, and still function for its intended purpose of containing magnetic flux “for situations such as when only smaller sections of the wrap-around member material are available or cost effective at the time of implementation.” However, the Examiner ignores the fact that Davies does not even suggest the use of discrete upper and lower members as a replacement for its “wrap-around box”. Examiner provides no technical explanation either.



Further, and even more astonishingly, the Examiner's conclusion flies directly in the face of established Federal Circuit precedence by failing to consider the primary purpose of box 42. Davies emphasizes that box 42 is a "flux-containing box", and currents induced in the box "counter the emergence of magnetic flux along the length of the box. [Davies, col. 5, lines 1-5]. The figures showing the "wrap-around" design of box 42 and layers 53, which are the only embodiments disclosed in Davies, clearly illustrate that the sole purpose of the wrap-around design is to counter the emergence of magnetic flux. Substituting a core that is not of a wrap-around design, and which instead comprises a central member, a first (upper) outer member and a second (lower) member, is clearly outside of the intended purpose and use of the box described in Davies. Thus, Davies does not teach the claimed invention using the stated objectives described in Davies. See, *WMS Gaming Inc. v. International Game Technology*, 184 F. 3d 1339 (Fed. Cir. 1999) (Federal Circuit interpreting prior art not to teach the claimed invention while using objectives described in the prior art to reinforce the interpretation).

For at least the reasons stated above, the Examiner has failed to establish a persuasive argument why one of ordinary skill in the art might modify the wrap-around flux-containing box 42 or its insulating member equivalent 53 in order to provide a "box" comprised of discrete outer members when this modification would clearly be outside the predictable function of the flux-containing box as set forth in Davies. Accordingly, Appellant respectfully submits that the Examiner's rejection of claims 16-19 under 35 U.S.C. § 103 for obviousness based upon Davies is not factually or legally viable. Appellant therefore requests that this rejection be reversed.

**The Rejection of Claims 12-15, 20-25 and 32 under 35 U.S.C. § 103(a) for Obviousness based upon Davies in view of Yoshizawa**

For convenience of the Honorable Board in addressing the rejections, claims 13-15 stand or fall together with independent claim 12. Claims 21 and 22 stand or fall together with independent claim 20. Claims 24 and 25 stand or fall together with independent claim 23.

In the third Office Action of June 1, 2004, the Examiner rejected claims 12-15, 20-25 and 32 under 35 U.S.C. § 103(a) as being unpatentable based upon Davies in view of Yoshizawa.

**Even if combined, Davies and Yoshizawa still do not disclose the elements recited in claim 12**

With respect to claim 12, the Examiner argued that the relationship between elements 54, 53 and 51 in FIG. 5 of Davies showed that “the first and second outer members . . . are of equal length but are shorter than the central member . . .” Further, the Examiner (from the claim 23 rejection discussion) argues that Yoshizawa teaches a core formed by a plurality of amorphous alloy ribbons insulated from each other and stacked to form a substantially elongated solid rectangular shape. Thus, argues the Examiner, the combination of Davies and Yoshizawa renders claim 12 obvious.

Appellant responded to this rejection by arguing “Davies does not disclose a core having a central member disposed between a first outer member and a second outer member.”

In the Final Office Action dated December 28, 2004 the Examiner maintained the previous rejection of claim 12.

As argued above with respect to independent claim 16, Davies fails to teach a core having “a central member disposed between a first outer member and a second outer member, wherein at least a portion of said central member extends beyond an end portion of one of said first and second outer members.” The flux-containing box, i.e. the insulated layer 53 is a wrap-around

insulator and cannot be replaced by two discrete outer members without moving beyond the predictable use of the “flux-containing box”, as described by Davies.

As mentioned above, Davies does not disclose or suggest a core having a central member disposed between a first outer member and a second outer member, as recited in claim 12. Appellant respectfully submits that Yoshizawa fails to cure this deficiency. Yoshizawa clearly disclosed a core having layers of equal length (Figure 2).

For at least the reasons stated above, the Examiner has failed to show that the combination of Davies and Yoshizawa disclose or suggest a core that includes a central member disposed between a first outer member and a second outer member. Accordingly, Appellant respectfully submits that the Examiner’s rejection of claims 12-15 under 35 U.S.C. § 103 for obviousness based upon Davies in view of Yoshizawa is not factually or legally viable. Appellant therefore requests that this rejection be reversed.

There is no motivation to combine the thin film of Yoshizawa with the detection system disclosed in Davies

With regard to claims 20 and 23, Appellant respectfully submits that there is no motivation from either reference to combine the detection apparatus of Davies with the magnetic core of Yoshizawa to arrive at the method of claim 20 or the EAS system of claim 23.

In the final Office Action, the Examiner states that:

[I]t would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use the specific type of core material and coil antenna construction such as taught by Yoshizawa et al., for implementing the interrogation/detection coil antenna of a system such as taught by Davies et al. in order to provide the intended antenna function (i.e. providing the intended EAS interrogation function) but a minimized size (within the design constraint of still retaining the intended EAS interrogation function), *wherein such minimized antenna size is desirable in various EAS applicants by minimizing the physical presence*, and thereby the associate physical and psychological intrusiveness and

unsightliness of the system in typical application environments such as business establishments. (emphasis added)

Yoshizawa teaches that the “thickness of the laminated magnetic core is 3 mm or less, preferably 1 mm or less.” [Yoshizawa, col. 5, lines 57-58]. Yoshizawa teaches a thin film antenna for use in an IC card, *which is not* a core of “at least minimum size for operably generating of an electromagnetic field for interrogation and detection of electronic article surveillance markers” as recited in claim 23.

Because the purpose of the core disclosed in Yoshizawa is to *reduce* the size of the antenna, Appellant submits that one of ordinary skill in the art would not be motivated to use the core of Yoshizawa with the antenna disclosed in Davies since the result of that combination would result in an antenna with a *reduced* size. Claim 23 requires an antenna of “*at least* minimum size” to generate an electromagnetic field. In other words, the claimed antenna must be large enough to interrogate and detect EAS markers. Yoshizawa, by contrast, teaches that the antenna should achieve the highest Q value in *the smallest antenna*, which is the exact opposite of what is recited in Appellant’s claims.

The Supreme Court in *KSR* agrees that without an established reason to combine the elements of two known devices, a finding of obviousness should not be found. *KSR* at 1741 (“A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. . . . It can be important *to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.*”) (emphasis added). When the prior art teaches away from combining certain known elements, discovery of a successful means of

combining them is more likely to be nonobvious. *KSR* at 1740, citing, *United States v. Adams*, 383 U.S. 39, 40, (1966).

Appellant respectfully points out that the Examiner has failed to provide a valid reason why the thin film disclosed in Yoshizawa should be combined with the antenna disclosed in Davies when Yoshizawa clearly teaches away from the use of an antenna of “at least a minimum size for operably generating of an electromagnetic field for interrogation and detection of electronic article surveillance markers”, as recited in Claim 23.

For at least the reasons stated above, the Examiner has failed to show any motivation, either expressed or implied, to combine the laminate core disclosed in Yoshizawa with the antenna disclosed in Davies, to arrive at the method of claim 20 or the antenna of claim 23, which recites a core of “at least minimum size for operably generating of an electromagnetic field for interrogation and detection of electronic article surveillance markers”. Accordingly, Appellant respectfully requests the Examiner’s rejection of claims 20-25 under 35 U.S.C. § 103 for obviousness based upon Davies in view of Yoshizawa be reversed.

Even if combined, Yoshizawa and Davies do not provide an antenna that is large enough to generate an electromagnetic field to interrogate an EAS tag

Claim 23 recites an electronic article surveillance antenna for generating an electromagnetic field to interrogate and detect electronic surveillance markers. Claim 23 requires the core and the coil winding to be “of at least a minimum size for operably generating of an electromagnetic field for interrogation and detection of electronic article surveillance markers.” Thus, the antenna must be at least large enough to operate in an EAS system. Yoshizawa discloses a magnetic core element suitable for use in a thin-film antenna, with a magnetic core of 25  $\mu\text{m}$  or less. Thus, Yoshizawa stresses a thin-film antenna for use in an IC card interface, with the sole purpose of *reducing* the

profile of the antenna. By contrast, claim 23 requires an antenna with a core and coil winding large enough (“of at least minimum size”) to generate an electromagnetic field to interrogate EAS tags in an EAS system. Thus, a system with the combined features of Yoshizawa and Davies, even if combined, would not result in an EAS antenna large enough to operate in an EAS interrogation system.

The combination of Yoshizawa and Davies fails to disclose an antenna with a magnetic core having a Q-value of 20 or less

Claim 32 recites an antenna “wherein a Q-value of said antenna is less than or equal to about 20 at an EAS operating frequency.” The Examiner rejected claim 32 by stating that Yoshizawa discloses a Q-value of about 20 or less, corresponding to an interrogation frequency of about 50kHz or less, and that one skilled in the art at the time the invention was made would have readily recognized that operating frequency can be selected as the operating frequency of choice based on factors such as frequencies already operating in the environment of application, FCC regulations, the type of marker used, user preference, etc.”

Yet Yoshizawa discloses a Q-value of “25 or more, and preferably 35 or more, and more preferably 40 or more.” [Yoshizawa, col. 5, lines 58-60]. Thus, even if combined, an antenna as disclosed in Davies using the magnetic core disclosed in Yoshizawa would fail to include all of the elements recited in claim 32, namely a core member having a Q-value “less than or equal to about 20”, as recited in claim 32.

The combination of the core disclosed in Yoshizawa with the detection system of Davies would not provide an operable transceiver

As supported in the specification on at least page 7, lines 7-16, Applicant’s EAS system, method and antenna require a specific Q-range in order to provide an operable transceiver antenna. Q plays an important role in both the transmit and receive modes of the claimed

antenna. Typically, a higher value of  $Q$  enhances detection sensitivity. However, because Applicant's claimed core is also used to transmit signals, a lower  $Q$  is desirable to avoid ringing of the transmission signal into the nearby receiver window causing false detections. Accordingly, Applicant's claimed device requires that the  $Q$  be considered. For example, as recited in Claim 32, the value of  $Q$  is limited to 20 or less.

Indiscriminately combining the thin-film antenna of Yoshizawa with the detection system of Davies, while ignoring the  $Q$ -factor which must be maintained within a particular range in order for the transceiver to operate efficiently, will result in system that cannot possibly function in the EAS environment that Applicant's system is specifically designed for. There is no teaching in either reference that the resulting combination of Yoshizawa and Davies will have a core transceiver antenna with the proper  $Q$ -value/range necessary to operate in an EAS environment.

For at least the reasons stated above, the combination of Yoshizawa and Davies fails to disclose or suggest an operable system for generating an electromagnetic field to interrogate and detect electronic article surveillance markers. With respect to claim 32, neither of these references teach or suggest a  $Q$ -value of the antenna being less than or equal to about 20 at an EAS operating frequency. Accordingly, Appellant respectfully submits that the Examiner's rejection of claim 32 under 35 U.S.C. § 103 for obviousness based upon Davies in view of Yoshizawa is not factually or legally viable, and requests that this rejection be reversed.

**The Rejection of Claims 26-29 and 31 under 35 U.S.C. § 103(a) for Obviousness based upon Davies in view of Yoshizawa and Balch**

For convenience of the Honorable Board in addressing the rejections, claims 26-29 stand or fall together with independent claim 23.

In the third Office Action of June 1, 2004, the Examiner rejected claims 26-29 and 31 under 35 U.S.C. § 103(a) as being unpatentable based upon Davies in view of Yoshizawa and Balch.

Even if combined, Davies, Yoshizawa and Balch still do not disclose the elements recited in claims 26-29 and 31

As discussed above, neither Davies nor Yoshizawa taken alone or in a hypothetical combination teaches or suggests the claimed invention. Neither reference discloses or suggests a “core and said coil winding being of at least a minimum size for operably generating of an electromagnetic field for interrogation and detection of electronic article surveillance markers”, as recited in independent claims 23 and 28. Claims 26-29 depend from one of claims 23 and 28.

Further, as also discussed above, the combination of Davies and Yoshizawa will result in a non-operable system since there is no teaching in either reference that the resulting combination of Yoshizawa and Davies will have a core transceiver antenna with the proper Q-value necessary to optimally operate in an EAS environment.

Balch, apparently cited for its disclosure of controllers and control circuitry, also fails to disclose or suggest the use of “a core and coil having at least a minimum size for operably generating an electromagnetic field for interrogating and detecting electronic surveillance markers.” Balch likewise is silent as to considerations of Q-values for operating in an EAS



environment. Thus, the addition of Balch fails to satisfy the deficiencies of Davies and Yoshizawa.

For at least the reasons stated above, the combination of Yoshizawa, Davies and Balch fails to disclose or suggest an electronic article surveillance antenna for generating an electromagnetic field to interrogate and detect electronic surveillance markers having a core and coil of at least a minimum size for operably generating the electromagnetic field. Accordingly, Appellant respectfully submits that the rejection of claims 26-29 and 31 under 35 U.S.C. § 103 for obviousness based upon Davies in view of Yoshizawa and Balch is not factually or legally viable and requests that this rejection be reversed.

**The Rejection of Claims 28-31 under 35 U.S.C. § 103(a) for Obviousness based upon Davies in view of Yoshizawa and Martinides**

For convenience of the Honorable Board in addressing the rejections, claims 29 and 30 stand or fall together with independent claim 28.

In the third Office Action of June 1, 2004, the Examiner rejected claims 28-31 under 35 U.S.C. § 103(a) as being unpatentable based upon Davies in view of Yoshizawa and Martinides.

**Even if combined, Davies, Yoshizawa and Martinides still do not disclose the elements recited in claims 28-31**

As discussed above, neither Davies nor Yoshizawa taken alone or in a hypothetical combination teaches or suggests the claimed invention. Neither reference discloses or suggests a “core and coil having at least a minimum size for operably generating an electromagnetic field for interrogating and detecting electronic surveillance markers.” Further, as also discussed above, the combination of Davies and Yoshizawa will result in a non-operable system since there is no teaching in either reference that the resulting combination of Yoshizawa and Davies will have a core transceiver antenna with the proper Q-value necessary to optimally operate in an EAS environment. The addition of Martinides fails to satisfy the deficiencies of Davies and Yoshizawa.

Martinides discloses a system for safeguarding against burglary using multiple transmitters. However, like Davis and Yoshizawa, discussed above, Martinides fails to teach or suggest a core and coil being of at least a minimum size to operably generate an electromagnetic field for interrogating and detecting electronic surveillance markers. The system disclosed in Martinides does nothing to cure the defects in Davies and Yoshizawa discussed above.

For at least the reasons stated above, the combination of Yoshizawa, Davies and Balch fails to disclose or suggest an electronic article surveillance antenna for generating an

electromagnetic field to interrogate and detect electronic surveillance markers having a core and coil of at least a minimum size for operably generating the electromagnetic field. Accordingly, Appellant respectfully submits that the Examiner's rejection of claims 26-29 and 31 under 35 U.S.C. § 103 for obviousness based upon Davies in view of Yoshizawa and Balch is not factually or legally viable and requests that this rejection be reversed.

### **VIII. Conclusion**

Based upon the foregoing, Appellant respectfully submits that the Examiner's rejections under 35 U.S.C. § 103 for obviousness based upon the applied prior art are not viable. Appellant, therefore, respectfully solicits the Honorable Board to reverse the Examiner's rejections under 35 U.S.C. § 103.

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## **APPENDIX A: CLAIMS ON APPEAL**

12. An electronic article surveillance system for generating an electromagnetic field to interrogate and detect electronic surveillance markers, comprising:

a core including a plurality of amorphous alloy ribbons insulated from each other and stacked to form an elongate solid rectangular shape; and

a coil winding of wire disposed around at least a portion of said core, said coil winding of wire insulated from said core, said core and said coil winding being configured for generating an electromagnetic field for interrogation and detection of electronic article surveillance markers, wherein said core comprises a central member disposed between a first outer member and a second outer member, wherein at least a portion of said central member extends beyond an end portion of one of said first and second outer members.

13. The system of claim 12, wherein said first outer member has a first length, said second outer member has a second length, said first length substantially equal to said second length.

14. The system of claim 13, wherein said central member has a third length, said third length greater than said first length and said second length.

15. The system of claim 14, wherein said first length and said second length are about 30 centimeters and said third length is about 50 centimeters.

16. An antenna for use in an electronic article surveillance system, said antenna comprising: a core comprising a central member disposed between a first outer member and a

second outer member, wherein at least a portion of said central member extends beyond an end portion of one of said first and second outer members; and

a coil winding disposed around at least a portion of said core.

17. The antenna of claim 16, wherein said first outer member has a first length, said second outer member has a second length, said first length substantially equal to said second length.

18. The antenna of claim 17, wherein said central member has a third length, said third length greater than said first length and said second length.

19. The antenna of claim 18, wherein said first length and said second length are about 30 centimeters and said third length is about 50 centimeters.

20. A method of detecting an electronic article surveillance (EAS) marker, said method comprising:

providing a core antenna comprising a core and at least one coil winding disposed about said core, said core comprising a plurality of amorphous alloy ribbons insulated from each other,

exciting said core antenna to provide an electromagnetic field in an interrogation zone of an associated article surveillance system; and

detecting an electronic article surveillance marker in said interrogation zone.

21. The method of claim 20, wherein said plurality of amorphous alloy ribbons are stacked to form an elongate solid rectangular laminated core assembly.

22. The method of claim 20, wherein said core of said core antenna comprises a central member disposed between a first outer member and a second outer member, wherein at least a portion of said central member extends beyond an end portion of one of said first or second outer members.

23. An electronic article surveillance antenna for generating an electromagnetic field to interrogate and detect electronic surveillance markers, comprising:

a core formed by a plurality of amorphous alloy ribbons insulated from each other and stacked to form an elongate solid rectangular shape having first and second ends; and

a coil winding of wire disposed around at least a portion of said core, said coil winding of wire insulated from said core, said core and said coil winding being of at least a minimum size for operably generating of an electromagnetic field for interrogation and detection of electronic article surveillance markers.

24. The antenna of claim 23, wherein said core is about 75 centimeters long and about 2 centimeters wide comprised of about 60 amorphous alloy ribbons, each amorphous alloy ribbon about 23 microns thick stacked and laminated together forming said core.

25. The antenna of claim 23, wherein said coil winding of wire is 24-gauge wire with about 90 turns around said core.

26. The antenna of claim 23, further including an electronic controller connected to said coil of wire, said electronic controller comprising:

transmitter means for generating an electromagnetic field for transmission into an interrogation zone for reception by an electronic article surveillance marker, the electronic article surveillance marker responding with a characteristic response signal;

receiver means for detecting the characteristic response signal from the electronic article surveillance marker; and

switching means for switching said coil winding of wire between said transmitter means and said receiver means.

27. The antenna of claim 26, wherein said electronic controller operates in a pulsed mode, wherein said switching means sequentially switches between said transmitter means and said receiver means in preselected time periods.

28. A system for generating an electromagnetic field to interrogate and detect electronic article surveillance markers, comprising:

a plurality of electronic article surveillance antennas, each of said plurality of antennas including;

a core formed by a plurality of amorphous alloy ribbons insulated from each other and stacked to form an elongate solid rectangular shape having first and second ends; and

a coil winding of wire disposed around at least a portion of said core, said coil winding of wire insulated from said core, said core and said coil winding being of at least a minimum size for

operably generating an electromagnetic field for interrogation and detection of electronic article surveillance markers; and,

at least one electronic controller connected to said plurality of antennas, said electronic controller including:

transmitter means for generating an electromagnetic field for transmission into an interrogation zone for reception by an electronic article surveillance marker, the electronic article surveillance marker responding with a characteristic response signal;

receiver means for detecting the characteristic response signal from the electronic article surveillance marker.

29. The system of claim 28, wherein a first of said plurality of electronic article surveillance antennas is selected by said electronic controller to operate in a transmit only mode and a second of said plurality of electronic surveillance antennas is selected by said electronic controller to operate in a receive only mode.

30. The system of claim 28, wherein said electronic controller operates in a non-pulsed mode.

31. A system for generating an electromagnetic field to interrogate and detect electronic article surveillance markers, comprising;

a plurality of electronic article surveillance antenna, each of said plurality of antennas including:



a core formed by a plurality of amorphous alloy ribbons insulated from each other and stacked to form an elongate solid rectangular shape having first and second ends; and

a coil winding of wire disposed around at least a portion of said core, said coil winding of wire insulated from said core, said core and said coil winding being of at least a minimum size for operably generating an electromagnetic field for interrogation and detection of electronic article surveillance markers; and

at least one electronic controller connected to said plurality of antennas, said electronic controller including:

transmitter means for generating an electromagnetic field for transmission into an interrogation zone for reception by an electronic article surveillance marker, the electronic article surveillance marker responding with a characteristic response signal;

receiver means for detecting the characteristic response signal from the electronic article surveillance marker; and

switching means for switching said coil winding of wire between said transmitter means and said receiver means.

32. The antenna of claim 31, wherein a Q value of said antenna is less than or equal to about 20 at an EAS operating frequency.

**APPENDIX B: EVIDENCE**

No evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132 of this title or of any other evidence entered by the Examiner has been relied upon by Appellant in this Appeal, and thus no evidence is attached hereto.

**APPENDIX C: RELATED PROCEEDINGS**

Since Appellant is unaware of any related appeals and interferences, no decision rendered by a court or the Board is attached hereto.

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